

## REMARKS

This Application has been carefully reviewed in light of the Office Action mailed August 20, 2008. At the time of the Office Action, Claims 1-20 were pending in this Application. Claims 1-20 were rejected. Claim 1 has been amended to further define various features of Applicants' invention. Applicants respectfully request reconsideration and favorable action in this case.

### **Rejections under 35 U.S.C. § 102**

Claims 1-6 and 14-18 were rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,057,734 issued to Naoyuki Tsuzuki et al. ("Tsuzuki"). Applicants respectfully traverse and submit the cited art does not teach all of the elements of the claimed embodiment of the invention.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co. Ltd.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Applicants respectfully submit that the cited art as anticipated by the Examiner cannot anticipate the rejected Claims, because the cited art does not show all the elements of the present Claims.

Applicant submits a new set of claims replacing, without prejudice, the current set of claims. The independent claim 1 has been clarified to recite that the method comprises the step of, dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration, adapting the holding time duration and/or the first discharging duration in order to ensure precise control of the valve. This formal clarification brings claim 1 into line with the corresponding wording of the other two independent claims 2 and 14. Basis for this amendment can be found throughout the whole application as filed, especially, paragraph [0009]. Thus, no new matter has been added. A marked-up version of the new set of claims is enclosed, from which the Examiner may take the individual amendments made.

*Tsuzuki* fails to teach at least: a method comprising the steps of dividing the discharging process into **a first discharging duration**, during which a predetermined first amount of electrical energy is discharged from the piezo actuator, a subsequent holding time duration, during which the piezo actuator is not controlled, and a subsequent second discharging duration, during which a predetermined second amount of electrical energy is discharged from the piezo actuator; and dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration, adapting the holding time duration and/or the first discharging duration in order to ensure precise control of the valve. This is naturally so since *Tsuzuki* concerns only charging of a piezo actuator to avoid bouncing of the valve member 67d. *Tsuzuki*, column 1, lines 51-53; and column 14, line 66 to column 13, line 21. Consequently, the subject matter of claim 1 is new in view of *Tsuzuki*.

Turning to independent claims 2 and 14 concerning charging of a piezo actuator, *Tsuzuki* fails to teach at least: dividing the charging process into **a first charging duration**, during which a predetermined first amount of electrical energy is fed to the piezo actuator, **a subsequent holding time duration**, during which the piezo actuator is not controlled, **and a subsequent second charging duration**, during which a predetermined second amount of electrical energy is fed to the piezo actuator; and **dependent on the waveform of a voltage at the piezo actuator** or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration, adapting the holding time duration and/or the first charging duration in order to ensure precise control of the valve. In *Tsuzuki* only a first ignition signal S1 and a second ignition signal S2 effect the closing of the valve. A holding time duration does not effect the closing of the valve and a holding time duration is not adapted. *Tsuzuki*, column 14, line 66 to column 13, line 21; column 10, lines 28-52; and column 14, lines 40-50. In other words, the method in *Tsuzuki* does not adapt a holding time duration dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator **during the holding time duration**. It is noted that the LC oscillation circuits are switched on by the ignition signals S1 and S2 respectively and this LC

oscillation circuit enhances the reduction of the voltage of the piezoelectric element 77. *Tsuzuki*, column 10, lines 28-52.

The rejection under 35 U.S.C. §102 is respectfully traversed because of the clarified amended set of claims filed. Since *Tsuzuki* fails to disclose the differences mentioned above, it is respectfully requested that the rejection under 35 U.S.C. §102 is withdrawn. Applicants respectfully submit that the dependent Claims are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicants respectfully request reconsideration and allowance of the dependent Claims. Applicants reserve the right to make further arguments regarding the Examiner's rejections under 35 U.S.C. §102, if necessary.

**Rejections under 35 U.S.C. §103**

Claims 7-13, 19 and 20 were rejected under 35 U.S.C. §103(a) as being unpatentable over *Tsuzuki* in view of U.S. Patent Application Publication No. 2002/0113139 by Nestor Rodriguez-Amaya et al. (“*Rodriguez-Amaya*”). Applicants respectfully traverse and submit the cited art combinations, even if proper, which Applicants do not concede, does not render the claimed embodiment of the invention obvious.

In order to establish a *prima facie* case of obviousness, the references cited by the Examiner must disclose all claimed limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Even if each limitation is disclosed in a combination of references, however, a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Rather, the Examiner must identify an apparent reason to combine the known elements in the fashion claimed. *Id.* “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Finally, the reason must be free of the distortion caused by hindsight bias and may not rely on *ex post* reasoning. *KSR*, 127 S.Ct. at 1742. In addition, evidence that such a combination was uniquely challenging or difficult tends to show that a claim was not obvious. *Leapfrog*

*Enterprises, Inc. v. Fisher-Price, Inc. and Mattel, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007), citing *KSR*, 127 S.Ct. at 1741.

The rejection under 35 U.S.C. §103(a) is respectfully traversed because of the clarified amended set of claims filed. The independent claim 1 has been clarified to recite that the method comprises the step of, dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration, adapting the holding time duration and/or the first discharging duration in order to ensure precise control of the valve. Since both *Tsuzuki* and *Rodriquez-Amaya* fail to teach the differences mentioned above, one of ordinary skill in the art would not be able arrive at the subject matter of the independent claims when combining *Tsuzuki* and *Rodriquez-Amaya*.

Since both *Tsuzuki* and *Rodriquez-Amaya* fail to teach the differences mentioned above it is respectfully requested that the rejection under 35 U.S.C. §103(a) is withdrawn. Applicants respectfully submit that the dependent Claims are allowable at least to the extent of the independent Claim to which they refer, respectively. Thus, Applicants respectfully request reconsideration and allowance of the dependent Claims. Applicants reserve the right to make further arguments regarding the Examiner's rejections under 35 U.S.C. §103(a), if necessary, and do not concede that the Examiner's proposed combinations are proper.

### CONCLUSION

Applicants have made an earnest effort to place this case in condition for allowance in light of the remarks set forth above. Applicants respectfully request reconsideration of the pending claims.

Applicants respectfully submit a Petition for One-Month Extension of Time. The Commissioner is authorized to charge the fee of \$130.00 required to Deposit Account 50-2148 in order to effectuate this filing.

Applicants believe there are no additional fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 50-2148 of Baker Botts L.L.P.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512.322.2545.

Respectfully submitted,  
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